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**Marc Oullet**

*Director of Planning & Development*  
*Boris Holdings Inc.*  
99B Ochterloney St  
Dartmouth, NS B2Y 1C6

**RE: Civic 540 Southgate Drive - Driver Sight Line Review**

Dear Mr. Oullet:

**1.0 INTRODUCTION**

As requested, the GRIFFIN transportation group inc. has carried out a driver sight line and sight distance review in support of the planning approval process for a proposed freestanding monument sign to be located at civic 540 Southgate Drive in the community of Bedford South, Halifax Regional Municipality (HRM). An existing commercial retail plaza building, known as Southgate Village Plaza, is located at civic 540 that contains a variety of businesses including a high-turnover sit-down restaurant, a children's learning centre, medical/dental offices, etc. In order to support these existing businesses, the plaza owner has plans to install the freestanding sign adjacent to the existing building, north and east of the Larry Uteck Boulevard / Southgate Drive signalized intersection. It is understood that the sign will be situated perpendicular to Larry Uteck Boulevard and measure about 1.8m high, 1.8m wide and have a depth of about 0.36m.

As part of the planning approval process, the HRM has requested that a traffic engineer review and identify any driver sight line impacts associated with the proposed sign. The GRIFFIN transportation group has completed this review based on a design drawing prepared by Boris Holdings. The review has been carried out for the critical vehicle movements including drivers exiting Southgate Drive as well as drivers exiting the plaza driveway. The site context is generally illustrated in *Figure 1*.

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Source: Bing Maps



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## Study Area and Site Context

## Figure 1

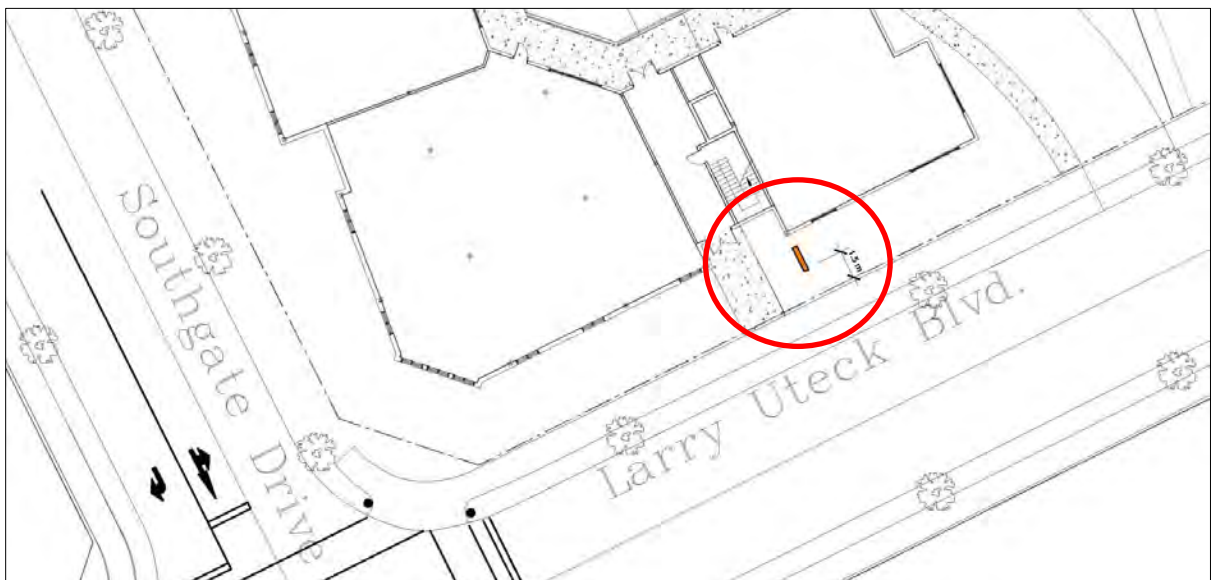
## 2.0 STUDY AREA AND SITE CONTEXT

Larry Uteck Boulevard is generally aligned in an east-west direction with a two-lane urban cross-section (one travel lane in each direction) plus auxiliary turn lanes at the signalized intersection with Southgate Drive. HRM has classified Larry Uteck Boulevard as an arterial street. The subject property is located in the northeast quadrant of this signalized intersection. There are two driveways serving the plaza including a north access connecting to Southgate Drive and an east access connecting to Larry Uteck Boulevard. The focus of the sight line/sight distance review was on the following vehicle turning movements:

- The right turn movement onto Larry Uteck Boulevard from Southgate Drive and the visibility to/from the east.
- The left turn movement onto Larry Uteck Boulevard from the east Plaza driveway and the visibility to/from the west.

The proposed sign will be located on the south side of the building along Larry Uteck Boulevard, between the building and the sidewalk, and between the front entrance walkway and the east Plaza driveway. As shown in *Figure 2*, the design drawing prepared by Boris Holdings provides a 1.5m set back distance from the street right-of-way and slightly more of a set back distance between the south face of the proposed sign and the north edge of the sidewalk.

**Figure 2: Proposed Sign Location Design Drawing**



Source: Boris Holdings

## 3.0 DRIVER SIGHT DISTANCE REVIEW

### 3.1 Overview

The driver sight line review was based on the guidelines contained in the Transportation Association of Canada's (TAC) Geometric Design Guide for Canadian Roads<sup>1</sup> document as well as HRM's supplementary design guidelines, also referred to as the "red book". The TAC guidelines use "design speed" for determining criteria associated with driver sight lines / sight distances such as minimum stopping sight distance (SSD). The design speed is associated with a range of vehicle operating speeds on the major roadway. Speed data were collected by the GRIFFIN transportation group on Tuesday July 11<sup>th</sup>, 2017 and the 85<sup>th</sup> percentile vehicle operating speed was calculated to be 58 km/h. It should be noted that the regulatory posted speed limit along the study area streets is 50 km/h, and the section of Larry Uteck Boulevard within the study area is signed as a school zone and the regulatory speed limit is 30 km/h when children are present. Despite the lower regulatory speed limit, a 60 km/h 85<sup>th</sup> percentile operating speed was applied to the analysis.

Following TAC procedures, there are two different sight distance assessments that are required to be undertaken including:

- *Approach Sight Distance* – This is applicable to driver's traveling on the major road (i.e. Larry Uteck Boulevard) approaching the intersection and ensures there is sufficient distance for them to identify a hazard and bring their vehicle to a stop. The minimum criteria for approaching vehicles is referred to as *Stopping Sight Distance (SSD)*.
- *Departure Sight Distance* – This is applicable to driver's waiting in a stopped position on the minor road (i.e. Southgate and Plaza driveway) and ensures there is sufficient distance for them to identify an oncoming vehicle on the major road and, as defined by TAC, not significantly affect an oncoming driver's speed after they enter the major road traffic stream. This is also referred to as *Turning Sight Distance (TSD)*.

It is also important to understand the differences in terminology. This report has used the terminology as applied by the Transportation Association of Canada (TAC) that includes:

- *Sight Line* – This is the line of sight from the driver's location to an oncoming vehicle (or hazard in the case of SSD) and is measured across intersection corners, through the inside of horizontal curves or over crest vertical curves.
- *Sight Distance* – Using the available sight line to identify an oncoming vehicle/hazard, sight distance is a vehicle's travel distance measured along the major roadway, from the point of recognizing a hazard up to the intersection.

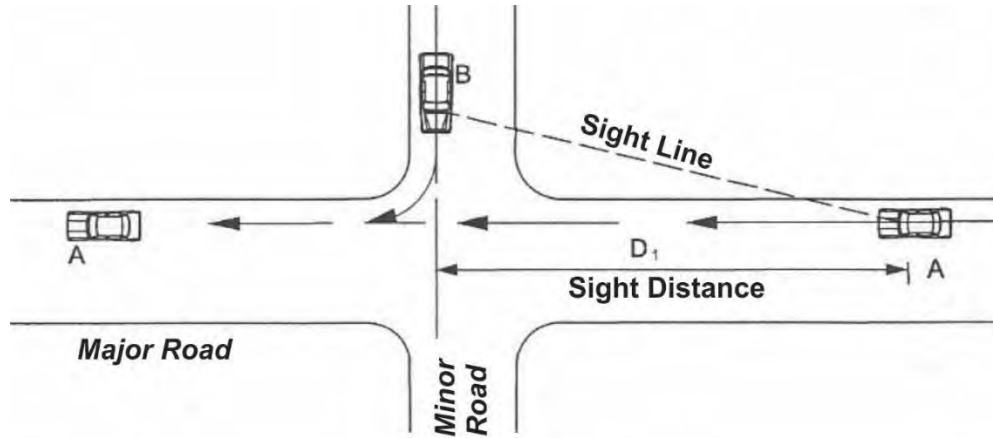
An illustration of a sight line and a sight distance at an intersection is shown in *Figure 3*.

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<sup>1</sup> Geometric Design Guide for Canadian Roads. Transportation Association of Canada. 1999 Edition, Updated December 2011.



**Figure 3: Driver Sight Line and Sight Distance**



### 3.2 Approach Sight Distances

The available approach sight distances were measured in the field by the GRIFFIN transportation group and were taken from a driver’s viewpoint if they were traveling on Larry Uteck Boulevard. Two separate measurements were recorded that included an eastbound driver’s view to a vehicle departing the east Plaza driveway, and a westbound driver’s view to a vehicle departing Southgate Drive. These specific measurements were chosen since they had the potential to be impacted by the proposed sign. TAC procedures for measuring sight distance were followed including a driver eye height of 1.05m and an object height of 0.38m. The field measured sight distances relative to the TAC minimum requirements are summarized in *Table 1*.

**Table 1: Approach Sight Distances Along Larry Uteck Boulevard (60 km/h)**

Major Road	Driver View	Available Sight Distance <sup>A</sup>	TAC Minimum Stopping Sight Distance	Available Exceeds Required?
Larry Uteck	EB driver, looking to East Plaza Dwy	>140m	85m	Yes
	WB driver, looking to Southgate Dr	>140m	85m	Yes

A – based on a 1m set back distance between the sign and the sidewalk

It was determined during the field review that the south edge of the proposed sign would need to be located at least 1m north of the sidewalk – and this formed the basis of the field measurements. Under these conditions, it was concluded that the available approaching driver sight distances measured in the field exceed minimum guidelines for drivers traveling along Larry Uteck Boulevard, given the expected vehicle operating speeds. Therefore, the proposed sign location shown in *Figure 2* with a 1.5m set back distance is not expected to negatively impact SSD.

### 3.3 Departure Sight Distances

The departure sight distance review is also referred to as a turning sight distance (TSD) assessment and ensures that drivers departing from a minor roadway or driveway have sufficient visibility to make a turn into the major road traffic stream. The two critical driver views are shown in *Figure 4*. The available turning sight distances for the two critical driver views were measured in the field by the GRIFFIN transportation group following TAC guidelines which included a driver eye height of 1.05m (measured from 3m behind the curb line of the major street) and an object height of 1.3m. The field measured sight distances relative to the TAC minimum requirements are summarized in *Table 2*.

**Table 2: Turning Sight Distance Assessment (60 km/h)**

Minor Road	Turn Movement and Driver View	No. of Lanes Crossed	Available Sight Distance <sup>C</sup>	TAC Minimum TSD	Available Exceeds Required?
East Plaza Dwy	Turning left, looking west	2	150m	125m <sup>A</sup>	Yes
Southgate Dr	Turning right, looking east	1	180m	108m <sup>B</sup>	Yes

A – Calculated using a TAC equation 2.3.3 and a time gap of 7.5s.

B – Calculated using a TAC equation 2.3.3 and a time gap of 6.5s.

C - Based on a 1m set back distance between the sign and the sidewalk.

Again, it was determined during the field review that a minimum 1m set back distance would be required between the south face of the sign and the north edge of the sidewalk. Under these conditions, the results indicate that the available TSD measured in the field, from both locations, exceed minimum guidelines. Therefore, the proposed sign location shown in *Figure 2* with a 1.5m set back distance is not expected to negatively impact TSD.

**Figure 4: Critical Driver Views**



*Southgate Drive:  
Looking east along Larry Uteck Blvd.*



*East Plaza Driveway:  
Looking west along Larry Uteck Blvd.*

## FINDINGS & CONCLUSIONS

The following conclusions were gleaned from the driver sight distance review:

- The proposed freestanding monument sign is to be located on the north side of Larry Uteck Boulevard, between Southgate Drive and the east Plaza driveway. Therefore, the critical driver sight lines potentially impacted by the installation of a sign would be a southbound right turn from Southgate Drive (driver looking east), and the southbound left turn from the east Plaza driveway (driver looking west). The southbound left turn from Southgate Drive (driver looking east) was not assessed since this movement is controlled by the traffic signal and all conflicting traffic on Larry Uteck Boulevard would be stopped by a red signal phase during this time.
- The proposed sign was assumed to be located between the sidewalk and the civic 540 building, on the east side of the pedestrian walkway connecting the sidewalk and the front entrance. The south face of the sign will be set back from the north edge of the street right-of-way by a distance of 1.5m, as shown in *Figure 2*.
- Approach driver sight distances were reviewed in both directions along Larry Uteck Boulevard assuming the proposed sign is in place. It was concluded that the proposed sign location shown *Figure 2* will not negatively impact the existing available driver stopping sight distance (SSD) for a 60 km/h 85<sup>th</sup> percentile operating speed.
- Departure driver sight distances were reviewed from the perspective of Southgate Drive (right turn) and the east Plaza driveway (left turn) assuming the proposed sign is in place. It was concluded that the proposed sign location shown in *Figure 2* will not negatively impact or restrict the required driver turning sight distances (TSD), based on a 60 km/h 85<sup>th</sup> percentile operating speed.

In summary, the proposed freestanding monument sign - as contemplated in this review - is not expected to restrict driver sight lines for southbound drivers turning from Southgate Drive or the east Plaza driveway. Based on the analysis findings and conclusions the following steps are recommended:

- That the design of the freestanding monument sign provide at least a minimum 1m setback distance from the north edge of the sidewalk to ensure driver sight lines are maintained. The proposed design shown in *Figure 2* provides a 1.5m set back distance.
- That the design and installation of the freestanding monument sign comply with all of HRM's Zoning and By-law criteria including setback dimensions (i.e. setback away from the street right-of-way), intersection sight triangle and corner clearance distances to ensure both approach and departing driver sightlines are maintained.

## CLOSING

The findings flowing from this review indicate that the proposed sign location shown in *Figure 2* provides a suitable location and meets TAC guidelines with respect to driver sight lines and sight distances. I would be happy to provide you with additional information or clarification regarding these matters and can be reached anytime by phone at (902) 266-9436 or by email at [jcopeland@griffininc.ca](mailto:jcopeland@griffininc.ca).

○ Originally Signed

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